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Inadequate management of complementary foods contributes to the risk of aflatoxin exposure and low nutrition status among children

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Abstract

Early exposure to aflatoxins through complementary food is linked to impaired growth in childhood. The current study assessed the household's practices on management of complementary foods in relation to the risk of aflatoxin exposure and poor nutritional status among infant and young children in Tanzania. A cross-sectional study of complementary feeding practices, aflatoxin exposure and nutritional status was conducted to 101 infants and young children aged between 6-23 months in Dodoma region of Tanzania. The intake of complementary food was estimated by using repeated 24 h dietary recall. Flour used as complementary food was sampled from each of the 101 families and aflatoxins were analysed using high-performance liquid chromatography. A deterministic approach was used to estimate dietary exposure of aflatoxins in the complementary foods. Anthropometric measurements were taken and rates of stunting, underweight and wasting estimated according to the WHO standard procedures. Multivariate logistic regression analysis was used to assess the association between feeding practices and aflatoxin exposure or the growth performance among subjects. The average consumption of complementary flour was 118 g per child per day and 52% of the flours contained groundnuts. AFB1 was detected in 42.5% of the flour and levels ranged from 0.3 to 2,128.0 μg/kg (mean 228.11±49.84 μg/kg). Dietary exposures of aflatoxin B1 ranged from 0.1 to 23,172.81 ng/kg body weight per day (mean 1,337±392.5 ng/kg). Of the subjects, 40.4% (95% CI; 29.8; 50.9) were stunted and significant association was found between stunted growth and dietary exposure of AFB1 (adjusted odd ratio (AOR)=5.9; 95% CI: 0.019-0.028). Early introduction of cereal-and groundnut-based complementary foods in Tanzania is associated with high risk of aflatoxin exposure and impaired growth in children. There is need to integrate aflatoxin management measures in the guidelines for Infant and Young Children Feeding of Tanzania.

Keywords

aflatoxins, complementary foods, dietary exposure, infants and young children, nutrition status